(b) determining the level of 6-thioguanine in said subject having said immune-mediated gastrointestinal disorder,

wherein the level of 6-thioguanine less than ~~a level corresponding to~~ about 230 pmol per $8x10^8$ red blood cells indicates a need to increase the amount of said drug subsequently administered to said subject and

wherein the level of 6-thioguanine greater than ~~a level corresponding to~~ about 400 pmol per $8x10^8$ red blood cells indicates a need to decrease the amount of said drug subsequently administered to said subject.

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7. A method of reducing toxicity associated with treatment of an immune-mediated gastrointestinal disorder, comprising:

(a) administering a drug providing 6-thioguanine to a subject having said immune-mediated gastrointestinal disorder;

(b) determining the level of 6-thioguanine in said subject having said immune-mediated gastrointestinal disorder; and

(c) determining the level of 6-methyl-mercaptopurine in said subject having said immune-mediated gastrointestinal disorder,

wherein ~~a~~ the level of 6-thioguanine greater than about 400 pmol per $8x10^8$ red blood cells or ~~a~~ the level of 6-methyl-mercaptopurine greater than about 7000 pmol per $8x10^8$ red blood cells indicates a need to decrease the amount of said drug subsequently administered to said subject ~~thereby reducing toxicity associated with said drug treatment of said immune-mediated gastrointestinal disorder~~.

~~19~~ 15. A method of optimizing therapeutic efficacy and reducing toxicity associated with treatment of an immune-mediated gastrointestinal disorder, comprising:

(a) administering a drug providing 6-thioguanine to a subject having said immune-mediated gastrointestinal disorder;

(b) determining ~~a~~ the level of 6-thioguanine in said subject having said immune-mediated gastrointestinal disorder; and

(c) determining ~~a~~ the level of 6-methyl-mercaptopurine in said subject having said immune-mediated gastrointestinal disorder,

wherein ~~a~~ the level of 6-thioguanine less than about 230 pmol per $8x10^8$ red blood cells indicates a need to increase the amount of said drug subsequently administered to said subject, ~~thereby increasing therapeutic efficacy~~.

wherein the level of 6-thioguanine greater than about 400 pmol per $8x10^8$ red blood cells indicates a need to decrease the amount of said drug subsequently administered to said subject ~~thereby reducing toxicity associated with said drug treatment of said immune-mediated gastrointestinal disorder~~, and

wherein the level of 6-methyl-mercaptopurine greater than about 7000 pmol per $8x10^8$ red blood cells indicates a need to decrease the amount of said drug subsequently administered to said subject ~~thereby reducing toxicity associated with said drug treatment of said immune-mediated gastrointestinal disorder~~.

22 ~~30~~. A method of optimizing therapeutic efficacy of treatment of a non-IBD autoimmune disease, comprising:

(a) administering a drug providing 6-thioguanine to a subject having said non-IBD autoimmune disease; and

(b) determining the level of 6-thioguanine in said subject having said non-IBD autoimmune disease,

wherein the level of 6-thioguanine less than about 230 pmol per $8x10^8$ red blood cells indicates a need to increase the amount of 6-mercaptopurine drug subsequently administered to said subject and

wherein the level of 6-thioguanine greater than about 400 pmol per $8x10^8$ red blood cells indicates a need to decrease the

amount of 6-mercaptopurine drug subsequently administered to said subject.

25. A method of optimizing therapeutic efficacy and reducing toxicity associated with treatment of an immune-mediated gastrointestinal disorder, comprising:

(a) administering a drug providing 6-thioguanine to a subject having said immune-mediated gastrointestinal disorder;

(b) determining the level of 6-thioguanine in said subject having said immune-mediated gastrointestinal disorder; and

(c) determining the level of 6-methyl-mercaptopurine in said subject having said immune-mediated gastrointestinal disorder,

wherein the level of 6-thioguanine less than about 230 pmol per $8x10^8$ red blood cells indicates a need to increase the amount of said drug subsequently administered to said subject, ~~thereby increasing therapeutic efficacy~~, and

wherein the level of 6-thioguanine greater than about 400 pmol per $8x10^8$ red blood cells or a level of 6-methyl-mercaptopurine greater than about 7000 pmol per $8x10^8$ red blood cells indicates a need to decrease the amount of said drug subsequently administered to said subject ~~thereby reducing~~

~~toxicity associated with said drug treatment of said immune-mediated gastrointestinal disorder~~.

52. A method of optimizing therapeutic efficacy of treatment of a non-IBD autoimmune disease, comprising:

(a) administering a drug providing 6-thioguanine to a subject having said non-IBD autoimmune disease;

(b) determining a level of 6-thioguanine in said subject having said non-IBD autoimmune disease; and

(c) determining a level of 6-methyl-mercaptopurine in said subject having said non-IBD autoimmune disease,

wherein a level of 6-thioguanine less than about 230 pmol per $8x10^8$ red blood cells indicates a need to increase the amount of said drug subsequently administered to said subject and

wherein a level of 6-thioguanine greater than about 400 pmol per $8x10^8$ red blood cells or a level of 6-methyl-mercaptopurine greater than about 7000 pmol per $8x10^8$ red blood cells indicates a need to decrease the amount of said drug subsequently administered to said subject, thereby reducing toxicity associated with said drug treatment of said non-IBD autoimmune disease.

Please add the following new claims:

37 ~~55~~. (New) A method of optimizing therapeutic efficacy and reducing toxicity associated with treatment of an immune-mediated gastrointestinal disorder, comprising:

(a) administering a drug selected from the group consisting of 6-mercaptopurine, azathioprine, 6-thioguanine, and 6-methylmercaptoriboside to a subject having said immune-mediated gastrointestinal disorder; and

(b) determining the level of 6-thioguanine or 6-methyl-mercaptopurine in said subject having said immune-mediated gastrointestinal disorder;

wherein the level of 6-thioguanine less than about 230 pmol per $8x10^8$ red blood cells indicates a need to increase the amount of said drug subsequently administered to said subject, ~~thereby increasing therapeutic efficacy~~, and

wherein the level of 6-thioguanine greater than about 400 pmol per $8x10^8$ red blood cells or a level of 6-methyl-mercaptopurine greater than about 7000 pmol per $8x10^8$ red blood cells indicates a need to decrease the amount of said drug subsequently administered to said subject, ~~thereby reducing toxicity associated with said drug treatment of said immune-mediated gastrointestinal disorder~~.

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38 ~~56~~. (New) The method of claim 37 ~~55~~, wherein said drug is 6-mercaptopurine.

39 ~~57~~. (New) The method of claim 37 ~~55~~, wherein said drug is azathioprine.

40 ~~58~~. (New) The method of claim 37 ~~55~~, wherein said immune-mediated gastrointestinal disorder is inflammatory bowel disease (IBD).

41 ~~59~~. (New) The method of claim 40 ~~58~~, wherein said subject having IBD is a pediatric subject.

42 ~~60~~. (New) The method of claim 37 ~~55~~, wherein said immune-mediated gastrointestinal disorder is selected from the group consisting of lymphocytic colitis, microscopic colitis, collagenous colitis, autoimmune enteropathy, allergic gastrointestinal disease and eosinophilic gastrointestinal disease.

43 ~~61~~. (New) The method of claim 37 ~~55~~, wherein said level of 6-thioguanine and said level of 6-methyl-mercaptopurine each is determined in red blood cells.

44 ~~62~~. (New) The method of claim 43 ~~61~~, wherein said level is determined using high pressure liquid chromatography.

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63. (New) The method of claim 55, wherein said toxicity associated with said drug treatment is selected from the group consisting of hepatic toxicity and hematologic toxicity.

64. (New) A method of optimizing therapeutic efficacy and reducing toxicity associated with treatment of an immune-mediated gastrointestinal disorder, comprising:

(a) determining a level of 6-thioguanine or 6-methyl-mercaptopurine in a subject administered a drug selected from the group consisting of 6-mercaptopurine, azathioprine, 6-thioguanine, and 6-methylmercaptoriboside, said subject having said immune-mediated gastrointestinal disorder;

wherein a level of 6-thioguanine less than about 230 pmol per $8x10^8$ red blood cells indicates a need to increase the amount of said drug subsequently administered to said subject, ~~thereby increasing therapeutic efficacy~~, and

wherein a level of 6-thioguanine greater than about 400 pmol per $8x10^8$ red blood cells or a level of 6-methyl-mercaptopurine greater than about 7000 pmol per $8x10^8$ red blood cells indicates a need to decrease the amount of said drug subsequently administered to said subject ~~, thereby reducing toxicity associated with said drug treatment of said immune-mediated gastrointestinal disorder~~.

65. (New) The method of claim 64, wherein said drug is 6-mercaptopurine.

48 ~~66~~. (New) The method of claim 46 ~~64~~, wherein said drug is azathioprine.

49 ~~67~~. (New) The method of claim 46 ~~64~~, wherein said immune-mediated gastrointestinal disorder is IBD.

50 ~~68~~. (New) The method of claim 47 ~~65~~, wherein said subject having IBD is a pediatric subject.

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51 ~~69~~. (New) The method of claim 46 ~~64~~, wherein said immune-mediated gastrointestinal disorder is selected from the group consisting of lymphocytic colitis, microscopic colitis, collagenous colitis, autoimmune enteropathy, allergic gastrointestinal disease and eosinophilic gastrointestinal disease.

52 ~~70~~. (New) The method of claim 46 ~~64~~, wherein said level of 6-thioguanine and said level of 6-methyl-mercaptopurine each is determined in red blood cells.

53 ~~71~~. (New) The method of claim 52 ~~70~~, wherein said level is determined using high pressure liquid chromatography.

54 ~~72~~. (New) The method of claim 46 ~~64~~, wherein said toxicity associated with said drug treatment is selected from the group consisting of hepatic toxicity and hematologic toxicity.

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